plane of the fissure. Thus the septum which separates the accessory lobe only casts a shadow for that part of its course which is in line with the rays, when it appears as a linear shadow. The position of the line will vary with the width of the accessory lobe. The topography of the vena azygos, which can be seen at the lower end on the medial side of the linear shadow, exhibits considerable variation. This variation depends on the depth of the fissure. In Case iv the whole of the arch can be seen projecting well out into the lung field; in Case ii the vein is lying close against the side of the mediastinum, and the arch is coming almost directly forwards, which accounts for its great density as compared with Case iv. In the other two cases the vein is intermediate in position and density of shadow between that of Cases ii and iv. Rawling states that the normal vena azygos opens into the superior vena cava at the level of the lower part of the second right intercostal space: the level of termination is seen in these cases to be higher than in the normal, Cases ii and iii being opposite the first interspace and Cases i and iv opposite the second costal cartilage.

Pathology

The only pathological condition that has been found in this lobe is due to obstruction of its bronchus by the vena azygos. Muller described the case of a boy, aged 18, who had myeloid leukaemia. The radiogram of the chest showed an abnormal shadow projecting laterally from the mediastinum above the hilum of the right lung, which was thought to be due to enlarged lymphatic glands. The boy died of the leukaemia, and the post-mortem revealed that the shadow seen in the radiogram was due to an accessory lobe of the azygos vein, which showed important pathological changes. The bronchus leading to the lobe was narrowed to a slit at its point of contact with the vein, while beyond this the bronchus opened up into a series of bronchiectatic sacculi filled with mucus. Muller's case suggests that the opacity observed in the lobe in two of our

cases might be due to a partial obstruction of the bronchus. Bentick and Wessler observed the shadow of an accessory lobe in a patient who had a carcinoma of the right lower lobe. A pleural effusion developed, and at the same time the hair line became progressively wider, probably owing to an interlobar effusion.

Apart from these two cases there is no record of any pathological state associated with this congenital abnormality.

Frequency

In 1916 Stibbe reviewed the twenty-three cases that had been reported in the literature since 1778, when Wrisberg first described the condition. Nineteen of these cases were reported in anatomical journals between 1866 and 1899.

More accurate statistics can now be obtained from the radiological departments of large chest hospitals. Mather, from the Royal Chest Hospital, Liverpool, reports four cases in 3,000 consecutive radiograms of the chest; while Sparks (personal communication), at the City of London Hospital, Victoria Park, has had six cases in 6,000 consecutive radiograms of the chest. Thus the incidence of this abnormality is approximately 1 per 1,000 of the population. The condition is also much more frequent in males than females.

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THE KNEE-JERK AND ITS VARIATION AN INDICATION FOR SYMPATHETIC RAMISECTION OR TRUNK SECTION

BY

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SYDNEY

There are a number of diseases in which the deep reflexes, such as the knee-jerk, are increased in excitability and have a prolonged relaxation time, with few or no oscillations when coming to rest after elicitation. This occurs in Raynaud's disease, some cases of Buerger's disease, Hirschsprung's disease, and in certain other vasospastic conditions. Dr. Harry Harris has found similar phenomena exhibited by patients suffering from certain types of renal pain. These diseases are due to abnormal activity of the sympathetic nervous system, as is distinctly indicated by the manner in which each condition responds to operations on this system. The presence of these abnormal reflex phenomena may be used as an indication for operation, because they disappear, or are modified, after the interruption of sympathetic influence.

How to Test the Knee-jerk

The knee-jerk is a myotatic reflex, and depends on the stretching of the quadriceps for its elicitation. This is usually accomplished by flexing the knee when the patient is reclining, or sitting upright in a chair. The

first position does not adequately stretch the quadriceps to induce tone. The second position allows the effect described by Magnus and de Kleijn to come into play—that is, an increase in tone in all extensor groups of muscles caused by contraction of the extensor muscles of the head, thus exaggerating the amount of tone present in the tested muscles.

Reinforcements of the Knee-jerk

Various methods of reinforcing the knee-jerk are used, such as pressing the hands together and making the patient look at the ceiling, but these reinforcements interfere with the exact state of the knee-jerk, in that they call into action a cortical contribution to tone.

The Ideal Position for Testing a Knee-jerk

To test a knee-jerk the patient should be in a reclining position. The head and back should be supported, so that the contraction of extending muscles of the neck is not evoked. The knee should be bent and allowed to swing freely over the edge of the bed or couch. In this position the quadriceps muscle is stretched, and this stretching induces whatever tone the quadriceps is capable of exhibiting.

Phases in the Knee-jerk

When the patellar tendon is tapped there is a phasic response in which the knee extends, and a subsequent variable phase. If tone is exaggerated the leg will stay

in the extended position momentarily and return relatively slowly to the position of flexion. If the position of flexion is assumed without oscillations of the leg, tone is hyper-normal. If oscillations are of wide amplitude and continue for a time, the quadriceps muscle is hypertonic. In spastic paraplegia, for example, if the failure of the hamstrings to relax does not prevent a definite extension, the reflex is delayed; the return to the starting position of flexion is slow, and the oscillations are absent. Finally, the leg hangs in a partially extended position, maintained by the tone of the quadriceps muscle (Fig. 1).

Even in locomotor ataxia the leg does not hang perpendicularly, but in slight extension, though not as extended as in the normal leg. After ramisection the leg hangs perpendicularly (Fig. 2) unless there is contracture of the quadriceps muscle. If contracture is present, the leg will take up an extended posture, and the reduction

of tone after operation will then be indicated by the short period of relaxation.

FIG. 1

FIG. 1.—Showing extension of normal leg on stretching the quadriceps muscle.

FIG. 2

FIG. 2.—Showing position of left leg after sympathetic ramisection contrasted with the normal right leg.

Tone as an Indication for Operation

In Raynaud's disease, Hirschsprung's disease, and Buerger's disease the character of reflex activity, as shown in the knee-jerks, may be used as an indication for operation. In every case of Raynaud's disease and of Hirschsprung's disease that I have personally examined hypertonus has been present. It may be present in Buerger's disease; it is almost invariably present in epilepsy.

In the normal person hypertonia is rarely present. To ascertain this I examined the knee-jerks of fifty medical students. In every instance except three the knee-jerk was normal in relaxation time and in oscillation. Of these three, two students, both mile runners, exhibited hypertonus, and in the other, a victim of

poliomyelitis, the phasic response was absent, and the leg hung perpendicularly from the knee.

CONVALESCENT SERUM IN PROPHYLAXIS OF MEASLES*

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Serum or whole blood taken from patients recovering from a disease has often been used in treatment empirically, and with varying results. Thus it has been employed in poliomyelitis, encephalitis lethargica, measles, and scarlet fever.

Historical

Nicolle and Conseil in 1916 were the first to succeed in protecting with convalescent serum a child who had been exposed to measles. Since then many observers have published their results, and all agree that the value of the serum, if properly used, is very great. Degkwitz in Munich and Debré in Paris control clinics where the serum is collected, prepared, and issued to all who require it, and they have thus treated many thousands of children with very striking results. Debré was the first to point out that the results are even more satisfactory if the serum is used to produce a mild attack rather than complete protection. It is obvious that as soon as a causal organism is definitely established and an animal serum prepared, the human serum will fall into disuse owing to the difficulties inherent in the procuring of sufficient supplies. At present the animal serums available are those of Tunncliffe, Degkwitz, and Ferry and Fisher. All these are prepared from a green streptococcus which, it is held though not generally accepted, is the causal agent of the disease. In a comparative

survey of these serums with convalescent serum, Gunn of the Metropolitan Asylums Board showed that:

Ferry and Fisher's serum protected	...	...	0 per cent.
Degkwitz serum protected	...	...	40 "
Tunncliffe's serum protected	...	...	43 "
Convalescent human serum protected	...	...	95.7 "

These figures are similar to those obtained by several workers, and show conclusively that, at present, the human serum is by far the most reliable.

Collection and Preparation of Serum

Since measles occurs mainly in children, it is with the greatest difficulty that we are able to obtain a sufficiency of blood from a donor. We have been fortunate in the co-operation of Dr. Massingham of the London Fever Hospital, where many adult cases of measles are treated, and he has kindly bled these cases for us. Each patient should be carefully examined before bleeding, and the greatest care taken to exclude anyone with the possibility of another infection. Particular notice is taken of any syphilitic or tuberculous taint, and no patient is bled except after a normal uncomplicated measles. Between the seventh and fourteenth days after defervescence 200 to 300 c.cm. of blood is collected aseptically into sterile oxalate solution, this allowing a yield of 50 per cent. of serum after precipitating the oxalate with calcium chloride. Sterility tests and a Wassermann reaction are done on every serum and, if these are satisfactory, 0.5 per cent. phenol is added and the serum is then pooled with several other serums so as to obtain as far as possible a final product of uniform potency. Before use the serum is filtered through a Seitz bacterial filter and a final sterility test done.

Effects of Administration

No ill effects have ever followed the use of a carefully prepared serum, and any unsatisfactory results can nearly always be traced to insufficient care in the preparation. It is sometimes said that the above technique does not preclude the administration of a tuberculous serum; in

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